

Relationship between Loneliness and Perceived Stress in Undergraduate Students

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Abstract

The recent study aims to study the association among loneliness and the perceived stress among the students. Employing a quantitative research design, self-report measures was used in order to measure the loneliness and the perceived stress. Data was collected from 200 young adults in Haripur, Pakistan, by applying convenient non-probability sampling technique, using a demographic questionnaire, the University of California, Los Angeles Loneliness Questionnaire, and the Perceived Stress Scale. Results indicates significant association between the loneliness and the perceived stress. Loneliness levels were higher among young females compared to young males; however, stress perceived due to loneliness was higher among young males than females. These findings may assist counselors and clinical psychologists in understanding the psychological effects of loneliness on stress and behavior.

Keywords: Loneliness, perceived stress, young adults.

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INTRODUCTION

Loneliness is feeling of being socially isolated that is subjective or the loneliness is lacking meaningful connections with others. It refers to a sense of emptiness or sadness that arises when individuals feel alone, even when surrounded by people. Perceived stress, on the other hand, reflects how students perceive and interpret the level of stress in their lives. It represents their personal assessment of the amount of stress they experience, considering different factors. Perceived stress and the loneliness occur in a bidirectional manner.

Different researches also show high level of associations, mostly among adolescents and the young adults, with high level of temporal stability, particularly in older populations. The substantial bidirectional and the association indicates interdependence between loneliness and perceived stress that is important to consider in future (Ripoll et al., 2023). The Loneliness has been linked with the increased level of feelings of stress and the anxiety (Hawley et al., 2006) and the loneliness may induce biases in cognition (Hawley & Cacioppo, 2010). The Social support also mediates the impact of stress-causing situations and also provides defense against the stressors effects (Pearlin et al., 1981).

Loneliness is defined as a distressing experience arises from a perceived discrepancy between social relationships an individual desires and those they actually experience (Perlman & Peplau, 1981; Hawley, 2010). The existing literature consistently identifies loneliness as a negative emotional state associated with feelings of emptiness, loss, and social disconnection (Arslan, 2020; Wang et al., 2017). Luo and Cacioppo (2012) proposed three interrelated dimensions of loneliness: intimate loneliness, relational loneliness, and collective loneliness. The loneliness may emerge from disruptions at multiple levels of social engagement (Hall, 1966; Dunbar, 2014). Empirical studies have supported the presence of these dimensions across diverse populations indicating both the universality and contextual variability of loneliness experiences (Hawley et al., 2012). In addition to dimensional frameworks, loneliness has also been categorized based on its origins and contextual antecedents. Tiwari (2013) classified loneliness into situational, developmental, and internal forms. These classifications show that the loneliness is a complex phenomenon results from the interaction of personal, environmental, and the relational factors rather than a singular experience.

From the evolutionary perspective, loneliness is seen as an adaptive signal that motivates individuals to restore the social connections those are essential for survival. According to cognitive model chronic loneliness is believed to heighten threat sensitivity and promote maladaptive cognitive biases, including hypervigilance to social threats (Cacioppo et al., 2006; Cacioppo et al., 2014). Rokach's tri-level model further conceptualizes loneliness as a multifaceted experience involving emotional pain, interpersonal disconnection, self-alienation, and maladaptive behavioral responses (Rokach, 1988). Psychodynamic and existential perspectives also contribute to the understanding of loneliness by attributing it to early attachment disruptions or the inherent human condition of separateness (Perlman & Peplau, 1982; Donaldson & Watson, 1996).

Perceived stress refers level at which individuals consider their life situations as unpredictable, uncontrollable, and also overwhelming (Cohen et al., 1983). Unlike the objective stressors, perceived stress indicates cognitive appraisal processes that is consistent with transactional models of stress and coping that emphasize on interaction between environmental demands and the coping resources those are perceived (Lazarus & Folkman, 1984). Within this framework, loneliness may intensify stress appraisals by reducing perceived social support, weakening self-efficacy, and increasing feelings of helplessness and vulnerability (Liu et al., 2020).

Most of the research findings indicates that individuals experiencing higher levels of loneliness report greater perceived stress, increased daily hassles, and heightened anxiety toward stress-inducing situations, particularly among adolescents and young adults. (Li et al., 2016; Laustsen et al., 2023).

In contexts where protective factors such as effective coping strategies, resilience, or strong social support networks are present studies reported nonsignificant relationship between loneliness and perceived stress (Brown et al., 2019; Smith et al., 2021). Social support, in particular, has been shown to buffer the adverse effects of loneliness on stress appraisal (Garcia & Puentes, 2017; Elmer et al., 2020).

Meta-analytic and cross-national studies indicate that females generally report higher levels of loneliness across age groups (Maes et al., 2019; Shankar et al., 2017). Adolescence and young adulthood appear to be particularly vulnerable periods, characterized by heightened social needs and still-developing coping capacities (Goossens, 2018). Studies has shown that women report higher levels of perceived stress than men, a pattern frequently attributed to differences in stress appraisal, coping strategies, and the expectations of social roles (Matud et al., 2015; Doron et al., 2014).

Problem Statement

The association of loneliness and perceived stress among undergraduate students.

Research Questions

RQ1: Is there significant relationship between perceived stress and loneliness among the undergraduate students?

RQ2: Does loneliness significantly predict perceived stress among the students those are undergraduate?

RQ3: Is there significant gender differences in the loneliness and perceived stress among students of under graduation?

Hypotheses

H1: There is significant positive relationship between perceived stress and loneliness among undergraduate students.

H2: Loneliness predict perceived stress in undergraduate students.

H3: Loneliness more in female undergraduate students as compared to male undergraduate students.

H4: Female undergraduate students have more perceived stress as compared to male undergraduate students.

Significance

By studying how feelings of loneliness may be related to the levels of perceived stress experienced by the students. This study provide insights into how loneliness may impact stress levels. Understanding this link contribute to the development of interventions and support systems in order to address loneliness and stress in student populations, ultimately promoting better mental health and academic outcomes. The findings can highlight the importance of social connectedness and support systems within educational environments to mitigate loneliness and reduce stress levels.

Research Methodology

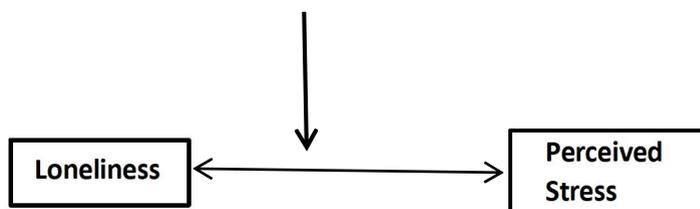
The present study is cross-sectional quantitative in nature and examine the association between loneliness and the perceived stress and find gender differences in loneliness and perceived stress among undergraduates. Participants were selected from universities using a convenient non-probability sampling technique. The sample size is 200 undergraduate

students that include 100 males and 100 females from the district of Haripur. The age range is 18–27 years. Individuals other than undergraduate students were excluded.

Demographic sheet was used in order to gather information like age, gender, department, institute name, family system, and the socioeconomic status. Participants informed about the purpose of the study, and informed consent attained. The Confidentiality was guaranteed.

Questionnaires were administered under researcher supervision. The Statistical Package for Social Sciences (SPSS) version 21 used for data analysis. Data screening used in order to identify missing values and the outliers. Assumptions of normality were examined through histograms, normality curves, skewness, and kurtosis. Cronbach’s alpha coefficients used for reliability. Descriptive statistics were computed, and correlation, regression, and independent sample t-tests were conducted in order to examine the relationships between variables and gender variances.

Conceptual Framework of the Study
Gender Differences



RESULTS

This study conducted in order to explore the link between loneliness and the perceived stress among the undergraduate students. A sample of (N = 200) undergraduate students was taken.

Analyses run by SPSS. Descriptive statistics such as frequencies and percentages were computed for study variables and demographic variables in the first step of analysis. For the estimation of internal consistency, reliability analysis was run. Furthermore, data was analyzed through Pearson correlation and Independent sample t-test.

Demographic Characteristics

Table 4.1 shows the frequency and percentage of demographics related to gender and socio-economic status. Among the participants, 50.0% were males and 50.0% were females.

Regarding socio-economic status, 5.0% of participants belonged to high socio-economic status, 92.0% belonged to middle socio-economic status, and 3.0% belonged to low socio-economic status.

Table 4.1: Participants Demographic Characteristics

Demographic characteristics	Frequency	Percentage
Gender		
Male	100	50
Female	100	50
Socio-economic Status		
High	10	5.0
Middle	184	92.0
Low	6	3.0



Note. F = Frequency of participants, % = Percentage.

Reliability Analysis

Table 4.2 shows that the alpha coefficient for UCLA-LQ (20 items) is .922 and the alpha coefficient for PSS (10 items) is .839, indicating that the scale items are internally consistent and reliable for measuring loneliness and perceived stress.

Table 4.2: Alpha Reliability Coefficients of UCLA-LQ and PSS

Source	N	A
UCLA-LQ	20	.922
PSS	10	.839

Note. N = Number of items, α = Alpha coefficient.

Correlation Analysis

Table 4.3 shows that pearson correlation used in order to examine the relationship among the UCLA Loneliness Questionnaire (UCLA-LQ) and the Perceived Stress Scale (PSS). The results shows strong positively significant correlation between loneliness and the Perceived stress $r(198) = .835, p < .001$. The results shows that higher level of loneliness scores are associated with the higher level of perceived stress scores.

Table 4.3: Pearson Correlation of Loneliness and Perceived Stress

Measure	1	2
1. UCLA-LQ	1	.835**
2. PSS	-	1

Note. UCLA-LQ = UCLA Loneliness Questionnaire; PSS = Perceived Stress Scale. ** $p < .01$.

Regression Analysis

Table 4.4 presents regression analysis for loneliness and perceived stress. The regression analysis indicated that loneliness does not significantly predict perceived stress. The coefficient for loneliness is small ($B = -0.012$) and the non-significant p -value ($p = .706$) shows that relationship between the loneliness and perceived stress may be due to chance.

Table 4.4: Regression Analysis of Loneliness and the Perceived Stress

Variables	B	SE	β	t	P
Constant	19.975	1.697	-	11.769	.000
Loneliness	-0.012	0.032	-0.027	-0.377	.706

B = Unstandardized coefficient, SE = Standard error, β = Standardized coefficient.

Gender Differences

Table 4.5 The independent sample t -test conducted for comparing females and males on loneliness and perceived stress. Females reported higher mean scores on loneliness ($M = 49.93, SD = 16.89$) as compare to the males ($M = 19.46, SD = 7.46$); the difference not statistically significant, $t(198) = .322, p = .142$. Similarly, females scored higher on perceived stress ($M = 49.14, SD = 17.80$) as compare to the males ($M = 19.28, SD = 8.33$), but these differences not statistically significant $t(198) = .161, p = .215$.

Table 4.5: Independent Sample t-test

Variable	Female(n=100)		Male(n=100)		t	P	95%CI		Cohen's d
	M	SD	M	SD			LL	UL	
Loneliness	49.93	16.89	19.46	7.46	.322	.142	-4.050	5.630	2.26



Perceived stress 49.14 17.80 19.28 8.33 .161 .215 -2.025 2.385 2.03

$p < .05$, M = Mean, SD = Standard Deviation, CI = Confidence Interval.

DISCUSSION

The present study aimed to explore the association among loneliness and perceived stress among undergraduate students.

Hypothesis 1, that is there is significant positive relationship between loneliness and perceived stress among undergraduate students, was supported. The results of correlation coefficient indicates strong positive relationship between loneliness and perceived stress. Results are consistent with the previous research. A longitudinal study reported a bidirectional relationship between loneliness and perceived stress, showing that loneliness predicts stress and vice versa over time (Li et al., 2016). Similarly, research during crisis contexts found that loneliness was associated with increased perceived stress, while resilience acted as a buffering factor (Elmer et al., 2020).

Hypothesis 2, which proposed that loneliness predicted the perceived stress, was not supported. Regression analysis revealed that loneliness did not significantly predict perceived stress among undergraduate students, suggesting that loneliness alone may not account for variations in stress levels. Previous research indicated that loneliness was related to increased social media use but did not significantly predict perceived stress (Brown et al., 2019).

Moreover, strong social support networks were found to weaken the link of loneliness and perceived stress (Garcia & Puentes, 2017).

Hypothesis 3, stating that loneliness will be higher among female undergraduate students compared to males, was supported. Female students reported significantly higher levels of loneliness than male students. This result is consistent with a meta-analysis demonstrating higher loneliness among females across age groups (Maes et al., 2019), longitudinal findings showing persistent gender differences (Hawkey et al., 2017), and cross-national evidence indicating higher reported loneliness among women (Shankar et al., 2017).

Hypothesis 4, proposing that female undergraduate students will exhibit higher perceived stress than males, was also supported. Female students reported significantly higher perceived stress levels. These findings are consistent with prior research indicating greater perceived stress among female students and the influence of gender roles, coping strategies, and societal expectations on stress experiences (Matud et al., 2015; Salman et al., 2017; Doron et al., 2014). The demographic characteristics of the sample ($N = 200$) showed equal gender representation and a predominance of middle-income socio-economic status. The reliability coefficients for the UCLA Loneliness Questionnaire ($\alpha = .922$) and the Perceived Stress Scale ($\alpha = .839$) confirmed strong internal consistency. Independent sample t-tests shows significant gender differences, with female students higher levels of both loneliness and perceived stress.

CONCLUSION

The study results showed positive correlation between the loneliness and perceived stress among undergraduate students. These results also related with previous existed researches those emphasize the relationship of these psychological states and also emphasizes the necessity for interventions those address the loneliness and stress. The study shows that the female students scored higher on both the loneliness and perceived stress as compare to the male counterparts. These results can assist institutions in order to modifying support services to better meet the needs of both gender students. The use of reliable instruments—the UCLA Loneliness Questionnaire and the Perceived Stress Scale—with strong internal consistency ($\alpha = .922$ and $\alpha = .839$, respectively) strengthens the credibility of the findings. However, the non-

predictive relationship between loneliness and perceived stress emphasize the complexity and influence of additional unmeasured variables. The study contributes important insight into the psychological well-being and supports the necessity for methods those address both socio-environmental and individual factors in order to promoting the mental health.

RECOMMENDATION

The future studies should conducted on larger and more diverse samples from the multiple universities and also different regions for increasing the generalizability of the results.

Further studies should conducted by using longitudinal research designs in order to better understand the relationship between the loneliness and perceived stress over the long time. Future researches also can explore the other psychological and social variables such as the social support, coping strategies, resilience, and also the social media use, those may influence the relationship between the loneliness and perceived stress. Additionally researchers also can conduct comparative studies across the different levels of education. Future studies can also be conducted by using mixed-method approaches in order to gain deeper insights

LIMITATIONS

Despite its contributions, the study has several limitations. The small sample size, limited diversity in different factors like socioeconomic status, cultural background, and the geographic location. Study was conducted by using cross-sectional design that hinders the causal inference. The use of self-reported Questionnaires might cause response bias. Further some hypotheses were not supported due to the data collection from individuals sharing similar cultural backgrounds and the styles of upbringing.

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